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Glossary

Thin Client Workstation

A thin client workstation refers to a device whose purpose is to connect to a thin client server. This can be a workstation, tablet or a purpose-built thin client device such as a Wyse Terminal. The Medisoft® Clinical application software is installed on a thin client server. Information that passes across the network from the end-user is keystrokes, mouse movements, and screen images.

Application Server

All customers will have an application server. This server is where the Medisoft Clinical application folder resides. The Medisoft Clinical network services are also installed on this server.

Thin Client Server

A thin client server is a shared resource that runs applications, as opposed to having the software installed locally on PCs. It provides advantages in ease of management and potentially cost savings in software licenses and client hardware. For large organizations, there may be several thin client servers in the network. Thin client servers can use Terminal Services by itself or also run the Citrix software. Use of Terminal Servers and/or Citrix is referred to as thin client server technology. Thin client servers are required when users are connecting from remote locations (through a WAN or broadband) or through a wireless connection. Thin client servers can also be used on a LAN to simplify administration. Please make note of the thin client server limitations at the end of this document.

Standard Workstation

A standard workstation may also be referred to as a fat client, or thick client. The Medisoft Clinical software is installed on the computer itself. Standard Workstations must be on a LAN to the application server.

Application Folder

Every Medisoft Clinical installation has an application folder. This folder contains (but is not limited to): configuration files, client software installation files, interface files, temporary files, and unless specifically configured otherwise, image files.

Recommended Configurations

Below are the Medisoft Clinical infrastructure recommendations. These recommendations are based on a mix of industry standard technologies and proven experience of our customers. These recommendations are also based on the minimum requirements listed in this document. Adding additional resources to some equipment may change the recommended configuration.

These recommendations are for production environments only. Additional infrastructure requirements may be necessary for reporting, failover, testing or training environments.

Please note that recommendations are based on a maximum of 5 concurrent Medisoft Clinical sessions per provider. For customers with multiple databases, the number of providers is calculated per database instance.

Also note that these requirements are specific to Medisoft Clinical v17. Although we try to anticipate future hardware and software needs and compatibilities, recommended/required configurations may change with future versions so please be sure to consult the documentation appropriate to the version you are installing or upgrading to.

Required Servers

- An application server is required.
- Thin client server technology is required for users connecting remotely (from home, over a WAN, through a VPN, etc.) or through wireless devices.
- A separate thin client server is required if the total number of thin client users exceeds 10.

Optional Servers

Fax Server

For smaller customers, the fax board may be installed on one of the existing servers in the environment, typically the application server. For larger customers doing significant volume of faxing, a separate fax server may be required. This server cannot be virtualized.

Web View Server

If you are using the Web View product, you must also have a separate server to run the web services. This must be its own server and cannot have patient data on it as the server must be configured to reside in the network's DMZ or have an encrypted tunnel to the internet to facilitate web traffic.

Operating Systems

- Small Business Server products are not supported
- Any operating system not listed should be considered not supported
- Unless otherwise specified, 32 and 64 bit server operating systems are supported
- Home operating systems are not supported

NOTE: Windows Server 2008 R2 is only supported with Service Pack 1 (SP1) of Medisoft Clinical v17.

Recommended

Below are the recommended operating systems for use with Medisoft Clinical v17.

Workstation

- Windows XP Professional SP3 (32-bit)
- Windows 7 Professional or Ultimate (32 or 64-bit)
 - EKG and Spirometry devices are not supported on Windows 7 64-bit

Application Server

- Windows 2003 R2 Server SP2 (32-bit)
- Windows 2008 R2 Server (64-bit)

Thin Client Server

- Windows Server 2003 R2
- Windows Server 2008 R2
 - RemoteApp feature is not supported
- Citrix MetaFrame 6.0

Web View Server

- Windows Server 2003 R2
- Windows Server 2008 R2

Fax Server

- Windows Server 2003 R2
- Windows Server 2008 R2

Standard Workstation/Laptop/Tablet

- Windows XP Professional
- Windows XP Tablet Edition
- Windows 7 Professional

Thin Client Workstation/Laptop/Tablet

Since thin client workstations, laptops and tablets do not run any Medisoft Clinical software, any operating system capable of running the appropriate thin client software is acceptable.

Some thin client devices come with a limited amount of on-device storage. Medisoft Clinical has not been tested to run in this configuration and there will very likely be problems. Thin client devices that will be accessing Medisoft Clinical must do so through a thin client server.

Supported

Below are additional supported operating systems for use with Medisoft Clinical v17.

Workstation

- Windows Vista Business (32-bit)

Application Server

- Windows 2003 Server SP2 (32-bit)
- Windows 2008 Server (32 or 64-bit)

Thin Client Server

- Windows Server 2008
 - RemoteApp feature is not supported
- Citrix MetaFrame 4.5

Web View Server

- Windows Server 2008
- Windows XP Professional SP3

Third-Party Software Compatibility

Medisoft Clinical sells several third-party software solutions that integrate with the Medisoft Clinical software. Customers may already own this software or can purchase it through other vendors. To ensure proper operation, below is a list of the specific software versions that are compatible with v17.

- Dragon Naturally Speaking 9.5, 10.0 and 10.1
 - 10.1 is required for Windows 7
- ZetaFax 2009
- Midmark ECG 8.1
- Midmark Spirometer 8.1
- ExitCare 7.4.2 (required for Windows 7)

Hardware Requirements

The hardware requirements listed below are designed to allow customers flexibility in their deployment of Medisoft Clinical. For specific formulas in determining how much hard drive space you need, please see the “Disk Storage Requirements” section.

The below minimum requirements are for the Medisoft Clinical software only. If you decide to run additional services (for example, DNS or Active Directory on your application server, or Microsoft Office on your workstation or thin client server) you may need to add additional CPUs and/or RAM.

Standard Workstation

| Component | Minimum Requirement |
|--------------------|--|
| CPU (Processor) | Intel Core 2 Duo 1.6GHz |
| RAM (Memory) | 2GB for Windows XP, 4GB for Windows Vista or Windows 7 |
| Network Card (NIC) | 100 Mbps |
| Video Resolution | 1024x768 (1200x800 for widescreen displays) |

Application Server

| Component | Minimum Requirement |
|--------------------|---|
| CPU (Processor) | Intel Dual Core Xeon 1.6GHz (Quad Core recommended) |
| RAM (Memory) | 4GB |
| Storage Array Type | RAID-1 (RAID-5 or higher recommended) |
| Optical Drive | DVD-ROM |
| Network Card (NIC) | 1Gbps |

For smaller customers, the above specifications will support up to 10 thin client users and the Medisoft Clinical application folder.

Thin Client Server

| Component | Minimum Requirement |
|--------------------|-----------------------------|
| CPU (Processor) | Intel Dual Core Xeon 2.5GHz |
| RAM (Memory) | 4GB |
| Optical Drive | DVD-ROM |
| Network Card (NIC) | 1Gbps |

Thin client servers are designed to support 25 sessions of Medisoft Clinical only. For each additional 25 sessions of Medisoft Clinical, add 4GB of RAM and 2 more CPU cores.

Web View Server

| Component | Minimum Requirement |
|--------------------|-------------------------------|
| CPU (Processor) | Intel Dual Core 1.6GHz |
| RAM (Memory) | 2GB (4GB for Windows 2008 R2) |
| Optical Drive | DVD-ROM |
| Network Card (NIC) | 1Gbps |

Thin Client Workstation/Laptop/Tablet

There are many different types of thin client devices available. Below are the recommended guidelines for Windows-based devices running thin client software.

| Component | Minimum Requirement |
|--------------------|---|
| CPU (Processor) | Intel Dual Core 1.6GHz (1.0 for Tablets) |
| RAM (Memory) | 2GB |
| Network Card (NIC) | 100Mbps (or 802.11g for wireless) |
| Video Resolution | 1024x768 (1200x800 for widescreen displays) |

Disk Storage Requirements

| Disk Component | Recommended Storage |
|-------------------------------------|---------------------------|
| Base Medisoft Clinical installation | 10GB |
| ePrescribing (formulary files) | 150GB* |
| Black and white imaging | 2GB per provider per year |
| Color imaging | 5GB per provider per year |
| Database growth | 2GB per provider per year |

Notes

- No single formula can account for every circumstance. If you will be doing an extraordinary amount of scanning (for example, full patient charts for every patient in your clinic), please discuss your storage needs with our support team.
- * ePrescribing formulary files can be relocated to a less expensive drive configuration. Please contact your implementation technician or McKesson PPS support for information regarding this configuration option.

Peripherals

Printers

McKesson recommends TCP/IP-enabled, PCL5-compatible printers.

For customers using thin client technology, use of the Uniprint software is recommended. More information can be found at <http://www.uniprint.net>.

Recommended Models

- HP P2035N (for light duty work, such as prescriptions)
- HP P4515N (for medium to heavy duty work, such as charts and reporting)

Scanners

McKesson requires TWAIN-compatible scanners. Please ensure any scanner that you purchase includes the necessary TWAIN driver software for use with the scanner.

For customers using thin client technology, use of the Remote Scan software is recommended. More information can be found at <http://www.remote-scan.com>.

Recommended Models

- HP ScanJet 5000/7000
- Fujitsu 6130

Fax Board

For small clinics, the fax board can be installed on the application server or a thin client server. For customers that do a larger amount of faxing, a dedicated fax server is recommended.

Recommended Models

- Brooktrout TR1034 Series

Medisoft Clinical Best Practices

Required

- The Medisoft Clinical application folder must be on its own logical partition labeled P:\
 - The P:\ drive must have two folders “PPART” and “License”
- Backups are not optional, they are required. A tape rotation with periodic offsite backups is recommended.
 - McKesson does not install, support or maintain backup solutions. This is completely the responsibility of the customer.
 - McKesson can not be held responsible for data loss incurred due to incomplete or corrupt backups.
- Anti-virus must be installed with the McKesson recommended configurations.
 - The application folder (PPART) and client folder (PRWIN) must be excluded from real-time/on-access scanning.
 - Schedule scans when users are not in the system are recommended.
 - Scanning across the network is not recommended.
 - Trend Micro and CA eTrust are unapproved anti-virus solutions that may cause instability in the Medisoft Clinical application.
- The use of teamed network interface cards (NICs) is not supported at this time.
- Medisoft Clinical requires a domain/Active Directory infrastructure
 - Each Medisoft Clinical user must have a unique Windows/domain username for security reasons
- Thin client server technology is required for wireless users, remote users (including remote clinics and home users) and any other non-locally networked workstation

Recommended

- The Windows pagefile should be on its own disk controller and should be two times the amount of RAM in the server.
- DNS should be on the same subnet as the Medisoft Clinical computers.
- Hardware from experienced and trusted vendors (HP, Dell, IBM) is highly recommended. White-box servers are strongly discouraged.
- Provision enough space on your operating system partition for growth. McKesson recommends 32GB+ for your operating system partition.
- Customers should have a hardware-level firewall protecting their network.
- For customers utilizing thin client technology, a separate Active Directory Organizational Unit is recommended.
- McKesson recommends serial attached SCSI (SAS) hard drives in application servers for best performance.

Special Considerations

Clustering

Medisoft Clinical currently does not support Windows clustering. The application server cannot be clustered.

Virtual Machines

McKesson supports the use of virtual servers to run the Medisoft Clinical application. Virtual servers should only be implemented by IT staff familiar in their implementation, configuration and administration. Hardware resources allocated to virtual servers should be equal to the resources required for physical hardware. McKesson recommends VMWare vSphere 4.0 or higher or Microsoft Hyper-V for hypervisors.

Workstation virtualization (such as VMWare View) is currently being evaluated and is not currently supported with Medisoft Clinical.

Thin Client Server Limitations

Use of a thin client server has certain limitations. These limitations are discussed below. If you have any questions about these limitations, please contact our support team.

Midmark ECG

The Midmark ECG is supported in a stand-alone environment meaning that you create and save results using Midmark's software. You can then export the results from Midmark and import them into Medisoft Clinical's database. By assigning the Patient IDs in the Midmark software, Medisoft Clinical will automatically import the report into the appropriate patient chart. In order for this configuration to function, the workstations must have a serial port; some tablet PCs do not have a serial port and therefore would not work. If the computer doesn't have a serial port you can purchase a Midmark Serial to USB adaptor or the IQPath software.

Midmark Spirometer

The Midmark Spirometer is supported and can be used in real time. To use the Spirometer in real time you must have the serial version of the Spirometer and the workstations must have a serial port; some tablet PCs do not have a serial port and therefore would not work. If the computer doesn't have a serial port you can purchase a Midmark Serial to USB adaptor or the IQPath software.

Dragon Medical

You can use the Dragon speech recognition product in a thin client environment. You must install Dragon locally. Using the "show dictation box" feature in Dragon, you can dictate directly into Medisoft Clinical running on the thin client server. Note that certain integration features are not compatible and do not function, but this method does allow for speech recognition capabilities within Medisoft Clinical.

Workstations running Dragon Medical must have a minimum of 4GB of RAM.



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